

Amendments to the Claims:

1 – 16 (canceled)

17. (currently amended) A process for producing a ceramic shaped object from ceramic powder via a powder bed, comprising:

forming a first region of the shaped object by a first laser sintering of a first ceramic powder; and

forming a second region of the shaped object integral with the first region by a second laser sintering of a second ceramic powder,

wherein the forming of at least one of the first and second regions comprises controlling densification, porosity and surface roughness to provide different material properties in the first and second regions of the shaped object, and

wherein additional layers of powder and additional steps of laser heating are added to form a ceramic shape in accordance with a shaped object, and

wherein the shaped object is a net shaped object that requires no additional processing necessary before use.

18. (previously presented) The process of claim 17, wherein a ceramic mold is formed.

19. (canceled).

20. (previously presented) The process of claim 17, further comprising controlling a laser beam generated during the first and second laser sintering processes to produce a different sintering temperature over the first and second regions of the object creating a different degree of densification in the first and second regions of the shaped object.

21. (previously presented) The process of claim 18, further comprising at least one of an additional laser sintering process and a hot isostatic pressing of the ceramic mold to achieve any further densification.

22. (previously presented) The process of claim 17, further comprising accessing a computerized representation of the object and using the computerized representation to control the process for producing the ceramic shaped object.

23. (previously presented) The process of claim 18, further controlling the process to form the first region of the ceramic mold to comprise a shell and the second region of the ceramic mold to comprise a core disposed in a cavity of the shell.

24. (previously presented) The process of claim 18, wherein the first region of the ceramic mold comprises an inner region and the second region of the ceramic mold comprises an outer region and the process is controlled so that the inner region is denser than the outer region of the mold.

25. (previously presented) The process of claim 17, further comprising using a ceramic powder or a powder mixture comprising grain sizes of less than 30 μm for at least one of the regions of the object.

26. (canceled).

27. (previously presented) The process of claim 17, wherein the ceramic powder comprises at least one ingredient that affects densification and/or sintering of the ceramic powder by producing a liquid phase for at least one of the regions of the object.

28. (previously presented) The process of claim 18, wherein the process is controlled to provide a surface in an inner region of the ceramic mold comprising a surface roughness different from an outer region of the ceramic mold.

Serial No. 10/551,740
Atty. Doc. No. 2002P19478WOUS

29.-35. (canceled)